

Investigation of the relationship between menopausal symptoms and physical activity level in the postmenopausal period of women

Menopausal symptoms and physical activity

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Abstract

Aim: The aim of this study was to investigate the relationship between menopausal symptoms and physical activity levels in postmenopausal women.

Material and Methods: One hundred seventeen women in the postmenopausal period with a mean age of 55.26 ± 6.24 years were included in the study. Physical activity level was evaluated with the International Physical Activity Questionnaire Short Form (IPAQ-SF), while menopausal symptoms were evaluated using the Menopausal Symptom Assessment Scale (MRS). MRS consists of three subtests: somato-vegetative, psychological and urogenital symptoms. Pearson's correlation was used to analyze the data. The significance level was accepted as $p \leq 0.05$.

Results: The relationship between IPAQ-SF scores and MRS somato-vegetative, psychological and urogenital symptoms subtests and total score of women was as follows: $r = 0.561$, $p = 0.054$, $r = 0.668$, $p = 0.040$; $r = 0.936$, $p = 0.008$; $r = 0.937$, $p = 0.007$, respectively.

Discussion: As a result of our study, it was determined that there was a moderate and high negative correlation between physical activity level and menopausal symptoms in postmenopausal women. This result showed us that physical activity had an effective role on the menopausal symptoms of postmenopausal women.

Keywords

Menopause; Physical activity; Climacterium

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Introduction

The World Health Organization defines menopause as the absence of menstruation for one year in a woman as a result of a decrease in estrogen hormone levels due to the cessation of ovarian functions (available at: http://whqlibdoc.who.int/trs/WHO_TRS_866.pdf). Menopause age varies from society to society. While menopause age is accepted as 51 in the world, in Turkey, it is accepted as 47 (available at: <https://www.jcog.com.tr/article/en-editorials-66894.html>). Therefore, women spend one-third of their life span with the effects and problems of menopause [1].

The menopausal period consists of premenopause, menopause and postmenopause. During the premenopausal period, the first symptoms appear; the menopause period is when the last menstrual bleeding occurs, and the postmenopausal period is the period starting one year after menopause and lasting until the beginning of old age [2].

Menopausal symptoms are influenced by age, occupation, education level, economic independence, income level, marital adjustment, marital status, orientation to other fields, the size of the family, the status of obtaining information specific to this period, role change and the value that society attaches to women [3].

Menopause is a period of hormonal changes in a woman, as well as changes in the family, in business life and in self-perception. Physiological and psychosocial changes, depending on estrogen deficiency, occurring in this period, manifest themselves with different intensity and duration and negatively affect physical and mental health. In addition to early health problems such as hot flashes, sweating, fatigue, insomnia and tension, late-term health problems such as osteoporosis, osteoporotic fractures, urogenital symptoms and cardiovascular diseases can also be seen. In this process, women are worried about aging, loss of fertility, changes in physical image, health problems combined with social and symbolic meanings negatively affect their lives [4].

Physical activity is defined as any movement that is performed using skeletal muscles in daily life and requires energy expenditure. Regular physical activity and exercise are low-cost and low-risk, as well as preserving and controlling health-related parameters such as cardiovascular endurance, body composition, muscle strength and endurance, flexibility is an effective healthy lifestyle behavior in the treatment of many diseases and symptoms [5].

While studies in the literature examine the effects of exercise on menopausal symptoms, quality of life and activities of daily living in women in the menopausal period, it has been observed that studies on physical activity often belong to the perimenopausal period [1,11,12,23].

The protective effect of physical activity in reducing menopausal symptoms has been emphasized, but certain conclusions have not been reached. Therefore, our study aims to examine the relationship between the physical activity level and menopausal symptoms of postmenopausal women. The study is expected to guide physiotherapists in the planning of the physical activity level for postmenopausal women to reduce menopausal symptoms.

Material and Methods

Participants:

Ethical approval was obtained for this study, which was planned as a cross-sectional analytical study, with the committee meeting of Pamukkale University Non-Invasive Clinical Research Ethics Committee dated 31.01.2017 and numbered 60116787-020 / 8896, and then an application was made to Denizli Province Public Health Directorate. After the application, evaluations were made in Kinikli and Camlik Primary care clinic in Denizli. For the evaluation, people enrolled in the family health center were provided with oral information over the phone, which indicated the inclusion criteria. Beginning with 133 women, 6 women were deemed ineligible for this study, and 10 women declined to participate. As a result, 117 women were analyzed for this study (Figure 1). Informed consent forms were signed by women who agreed to participate in this study, and they were assessed using face-to-face interviews.

Inclusion criteria:

The study included women aged 35 to 65 years who had at least one year after their last menstrual bleeding, whose menopausal status was defined as postmenopausal according to the STRAW classification, and who volunteered to participate in the study. The STRAW evaluation was carried out by physicians in the primary care clinic.

Exclusion criteria:

The exclusion criteria were the presence of a physical illness or mental disability that prevented understanding and responding to the scales applied, hysterectomy and any gynecological surgery, chronic menstrual irregularity, having received hormone therapy for any reason in the last 3 months and not speaking Turkish. Verbal information about the study was given to the participants again before the registration process. Then, anthropometric measurements (height and weight) of the participants were made by the same researcher, and sociodemographic (age, education, employment and marital status) and health information forms were filled with face-to-face interview technique. Later, the Menopausal Symptom Assessment Scale (MRS) and the International Physical Activity Questionnaire-short form (IPAQ-SF) were used for evaluation.

Data Collection Tools:

1. Menopause Rating Scale (MRS)

Menopausal symptoms were evaluated according to internationally accepted Menopausal Symptoms Assessment Scale (MRS) and developed by Schneider et al. (2000). MRS consists of 11 items and 3 subtests including menopausal complaints. Subtests are somato-vegetative complaints, psychological complaints, and urogenital complaints. The validity and reliability of the scale was made by Gurkan in 2005 [6].

Likert-type scale has 5 options for each item. They are 0: none, 1: mild, 2: moderate, 3: severe and 4: very severe options. While the minimum score obtained from the total of MRS is "0", the maximum score is "44". An increase of the total score on the scale indicates the increase in the severity of the complaints. Also, it shows that the quality of life is negatively affected.

2. International Physical Activity Questionnaire Short Form (IPAQ-SF)

The physical activity status of the women participating in the

study was obtained by evaluating the activity frequency and duration, which they declared in the International Physical Activity Questionnaire Short Form. The IPAQ was developed by the International Group for Consensus of Physical Activity Measurements and has been used in 25 countries with the approval from the World Health Organization. The validity and reliability study of the IPAQ was first conducted at 14 centers in 12 countries. The validity and reliability study of the Turkish version of the questionnaire was made by Karaca (2007). The test-retest reliability of the IPAQ short form was found to be $r = 0.69$ [7].

Statistical analysis:

Data were analyzed with the SPSS package program (software). Frequency and percentage distributions for descriptive categorical variables, means and standard deviations for continuous variables were calculated. The level of significance in statistical test results was accepted as $p \leq 0.05$ and interpreted. Chi-square and Fisher's exact tests for categorical variables, t-test for continuous variables, ANOVA analysis of variance and Pearson correlation test were used in comparative analyzes.

Results

One hundred seventeen women in the postmenopausal period with a mean age of 55.26 ± 6.24 years participated in the study. Figure 1 shows a flow chart of the study design. The demographic and health-related data of the participants are shown in Table 1.

Among the participants, 84.6% had no current or past smoking history. When the physical activity level of the women participating in the study was examined, it was seen that 60 (51.3%) women were inactive, and 57 (48.7%) women were minimally active (Table 1).

Considering the relationship between the total score of the women participating in the study on the MRS scale and their IPAQ-SF scores, it was observed that 58.3% of women with no menopausal symptoms were physically active (minimal or very active), and 53.3% of women with severe menopausal symptoms were inactive. The total IPAQ and MRS scores and subscores of the women are shown in Table 2. The relationship between the women's IPAQ-SF scores and the MRS somato-vegetative, psychological and urogenital symptoms subtests and total scores was as follows: $r = -0.561$, $p = 0.054$, $r = -0.668$, $p = 0.040$; $r = -0.936$, $p = 0.008$; $r = -0.937$, $p = 0.007$, respectively (Table 3).

Table 2. Descriptive statistics of physical activity levels (IPAQ) and Menopausal Symptom Assessment Scale (MRS) Total score/subscores

Variables	Min.-Max.	M±SD (n=117)
IPAQ	0-5119,50	741,57±794,17
Menopausal Symptom Assessment Scale Total	0-34	11,98±7,10
Somato-vegetative	0-10	2,53±1,94
Psychological	0-22	7,05±4,61
Urogenital	0-10	2,39±2,41

M=mean, SD=standard deviation

Table 1. Demographic and clinical characteristics of the participants

Variables	M±SD (n=117)
Age (year)	55,26±6,24
Height (cm)	157,96±6,01
Weight (kg)	72,85±11,66
BMI	29,23±4,62
n (%)	
Education	
Lettered	4 (3,4)
Primary school	62 (53)
Secondary school	8 (6,8)
High school	27 (23,1)
College/university	16 (13,7)
Employment status	
Working	13 (11,1)
Non working/retired	104 (88,9)
Marital status	
Married	100 (85,5)
Never married	1 (0,9)
Separated/divorced/widowed	16 (13,7)
Physical activity level (%)	
Low	60 (51,3)
Moderate	57 (48,7)
High	0 (0)
Number of children (%)	
0	3 (2,56)
1	19 (16,23)
2	58 (49,57)
3	32 (27,35)
>4	5 (4,27)
Age at first menstrual period (%)	
10-13 years	77 (65,81)
14-18 years	40 (34,18)
History of menopause (%)	
0-5 years	46 (39,31)
6-10 years	38 (32,47)
>10 years	33 (28,20)

BMI= body mass index, M=mean, SD=standard deviation

Table 3. Correlation between physical activity levels (IPAQ) and Menopausal Symptom Assessment Scale (MRS) Total score/subscores

Variables	IPAQ (n=117)	
	r	p
Menopausal Symptom Assessment Scale Total	0,937	0,007
Somato-vegetative	0,561	0,054
Psychological	0,668	0,040
Urogenital	0,936	0,008

Pearson correlation analysis; p= significance level, r= correlation coefficient.

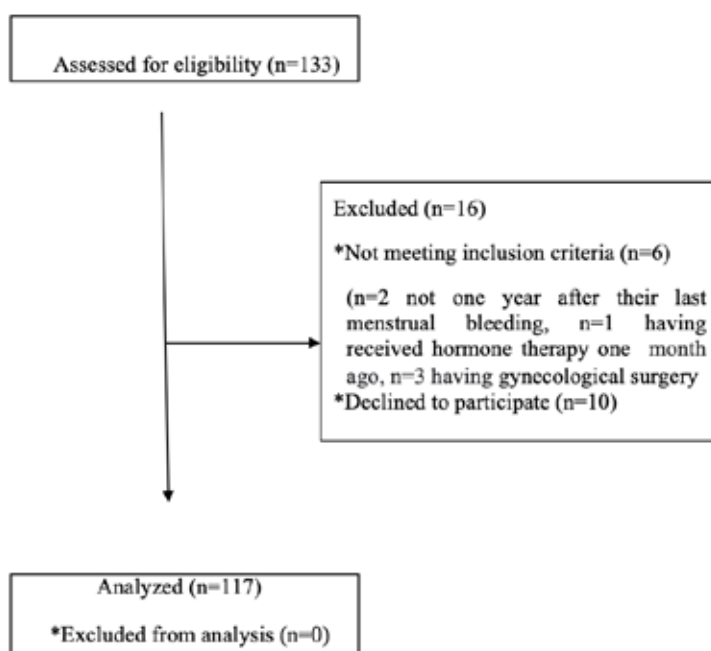


Figure 1. Flow chart of the study design

Discussion

In our study, we aimed to evaluate the relationship between physical activity level and menopausal symptoms in postmenopausal women, and we found that physical activity level was inversely associated with menopausal symptoms in postmenopausal women.

The menopausal period causes hormonal, physical and emotional changes. These changes are not at the same level for all women, because they are affected by cultural differences, education level and some personal factors [8]. The low scores of women in our study on the assessment of menopausal symptoms made us think that they were severely affected by the symptoms in this period. Similar effects were reported in other studies conducted in our country [8,9].

Hormone Replacement Therapy, which is considered the basic and most effective treatment option for symptoms experienced by women during menopause, directs women to alternative methods (lifestyle changes, weight control, physical activity) due to concerns of some risks and side effects. While the effect of such lifestyle changes on general quality of life is evident, their relationship with menopausal symptoms is contradictory [10].

We encounter different results in studies that examine the relationship between menopausal symptoms and physical activity levels, which is among alternative treatment approaches. In the literature, in addition to all the positive contributions mentioned above, it has been reported that the symptoms of menopause do not decrease with physical activity, but the quality of life increases in the postmenopausal period [11]. Among the contradictory data, studies showing that there is insufficient evidence to determine whether physical activity has a positive or negative effect on these symptoms have also been reported [12].

The relationship between physical activity status and menopausal symptoms may vary depending on the intensity of the activity [13]. A study showed that women who were physically active or minimally active had fewer somato-vegetative,

psychological, and urogenital complaints. A statistically significant negative correlation was found between the physical activity status of women and somatic complaints in the form of joint-muscle disorders, sleep problems, dryness of the vagina, sexual problems and urinary problems. There was no significant relationship between anxiety, malaise, irritability, mental and physical fatigue, hot flashes and heart problems and physical activity. Weight control and regular physical activity have been recommended as lifestyle changes for women with menopausal symptoms. [8]. In another study examining the relationship between physical activity level and menopausal symptoms, high-intensity exercise had little effect on menopausal symptoms; it has been observed that mild physical activity in leisure time and gardening, at work or while carrying something is more effective in menopausal symptoms. It has been reported that with regular physical activity, individuals feel more comfortable, less severe and less frequent menopause symptoms [14].

The most typical finding of the climacteric period is vasomotor symptoms. Discigil et al., in their study investigating the perception of menopause, reported that the most common symptom experienced by women in the menopausal period in the last 3 months was vasomotor complaints, and women most frequently associate hot flashes, night sweats and nervousness with menopause [15].

Mood disorders and mood changes are observed under the influence of hormonal changes in the central nervous system during premenopause and postmenopause. The decrease in serotonin hormone due to estrogen deficiency makes it difficult for women to fall asleep and causes insomnia. The study reported that 91% of menopausal women had irritability, 86% of them had depression, 82% had a loss of concentration, 81% had personality changes, 77% had sleep problems, 77% had lack of motivation, 75% had memory loss, 37% had hot flashes, 19% had a headache and 18% had excessive sweating [16]. There were studies showing that physical activity had a significant effect on menopausal symptoms, especially in terms of vasomotor symptoms [17, 18], and also it was reported that it was not related [19]. In our study, we found a moderately positive significant relationship between physical activity level and vasomotor symptoms. Regular physical activity reduces the body's response to stress. The severity and frequency of symptoms such as hot flashes and sweating can be reduced by the combined use of relaxation techniques such as deep breathing that reduce sympathetic activation.

Elavsky and McAuley reported in their study that menopausal women with more physical activities had less perception of menopausal symptom violence and increased psychological well-being [18]. Daniel et al. stated that after intense physical activity, women in the menopausal period tend to be significantly more calm, relaxed and pleasant, free from depression, anger and confusion, and this is due to the increase in endogenous endorphin levels in response to activity [13]. In a study conducted with menopausal women between the ages of 42-52, depressive symptoms decreased as the intensity of physical activity increased [20]. A study from Italy reported that the complaints of depression, forgetfulness and nervousness were more common in menopausal women with low physical activity levels [21]. When the relationship between physical activity

level and the Menopausal Quality of Life Scale (MOYKO) was examined in 2606 women in menopausal period, it was reported that physically inactive women had increased levels of anxiety, depression, decreased well-being, memory and concentration problems compared to active women. It has also been reported that physically active women have a better quality of life [22]. In our study, it was found that most of the women with psychological complaints were physically inactive. This period may also lead to an increase in feelings of loneliness, aging, uselessness and pessimism, as the general health condition that is moderate or poor, retirement, parental deaths, children leave home due to reasons such as school, work, marriage, etc. The inadequacy in the mechanism of coping with physical health and emotional problems may have caused women to feel more severe menopausal symptoms by reducing their activity levels. This result is actually a reflection of our country, we believe that individuals in our country gaining physical activities and hobby activities that they can enjoy in daily life from childhood will transform individuals into more active and happier individuals in life in the future.

A decrease in muscle tone around the reproductive organs is observed with menopause. Li et al. reported that physically active women had fewer complaints of vaginal dryness and lack of sexual desire. It was reported that sexual symptoms of physical activity during the transition to menopause helped to recover [23]. Similar to the literature, we found that women who were inactive during the postmenopausal period had more urogenital complaints. We thought that these complaints could be reduced by increasing the physical activity of postmenopausal women, therefore they should be informed about this issue.

Although we thought that the limitation of our study was that the study was conducted on a small population, we believed that it was a useful study in terms of creating a role model representing our society in determining the relationship between physical activity level and menopausal symptoms.

Conclusion and Recommendations

In our study, it was observed that somato-vegetative, psychological and urogenital symptoms related to the postmenopausal period decreased with the increase in the level of physical activity. Most women who experienced symptoms such as sleep problems, hot flashes, heart problems, muscle-joint disorders, malaise, irritability, anxiety, physical and mental fatigue, urinary problems, sexual problems and vaginal dryness were found to be inactive. Especially when the negative effects of the postmenopausal period are combined with a sedentary life, the health problems that occur during this period increase even more and may cause a person to experience this period of poor quality. The changes that occur due to menopause, which is a period of life, affect each woman differently and direct women to seek alternative treatment. Regular physical activity and weight control are recommended lifestyle changes. In this direction, studies and publications on women's health may recommend to investigate the effect of physical activity on menopause symptoms, conduct more interventional studies in physical therapy units and menopause clinics related to the subject, sharing the results and influencing hospital policies to raise women's awareness of menopause and increase exercise training in this field.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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